

30. An isolated nucleic acid sequence encoding a polypeptide having carboxypeptidase activity, selected from the group consisting of:

(a) a nucleic acid sequence encoding a polypeptide having an amino acid sequence which has at least 70% identity with amino acids 19 to 555 of SEQ ID NO. 2;

(b) a nucleic acid sequence having at least 70% homology with nucleotides 55 to 1662 of SEQ ID NO. 1;

(c) a nucleic acid sequence which hybridizes under medium stringency conditions with (i) nucleotides 55 to 1662 of SEQ ID NO. 1, (ii) a subsequence of (i) of at least 100 nucleotides, or (iii) a complementary strand of (i) or (ii), wherein medium stringency conditions are defined as prehybridization and hybridization at 42°C in 5X SSPE, 0.3% SDS, 200 mg/ml sheared and denatured salmon sperm DNA, and 35% formamide;

(d) a subsequence of (a), (b), or (c), wherein the subsequence encodes a polypeptide fragment which has carboxypeptidase activity; and

(e) a nucleic acid sequence encoding a polypeptide having carboxypeptidase activity with (i) an optimal activity in the range of about pH 4.0 to about pH 5.0 at 25°C; (ii) an optimal activity in the range of about 55°C to about 60°C at pH 4; (iii) a residual activity of at least about 65.5% after 30 minutes at pH 4.0 and 60°C; and (iv) an ability to hydrolyze X from N-CBZ-Ala-X wherein N-CBZ is N-carbobenzoxy and X is any amino acid.

31. The nucleic acid sequence of claim 30, which encodes a polypeptide having an amino acid sequence which has at least 70% identity with amino acids 19 to 555 of SEQ ID NO. 2.

32. The nucleic acid sequence of claim 30, which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO. 2.

33. The nucleic acid sequence of claim 30, which encodes a polypeptide consisting of the amino acid sequence of SEQ ID NO. 2, or a fragment thereof which has carboxypeptidase activity.

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34. The nucleic acid sequence of claim 33, which encodes a polypeptide consisting of the amino acid sequence of SEQ ID NO. 2.

35. The nucleic acid sequence of claim 34, which encodes a polypeptide consisting of amino acids 19 to 555 of SEQ ID NO. 2.

36. The nucleic acid sequence of claim 30, which has at least 70% homology with the nucleic acid sequence of SEQ ID NO. 1.

37. The nucleic acid sequence of claim 30, which has the nucleic acid sequence of SEQ ID NO. 1.

38. The nucleic acid sequence of claim 30, wherein the nucleic acid sequence hybridizes under medium stringency conditions with (i) nucleotides 55 to 1662 of SEQ ID NO. 1, (ii) a subsequence of (i) of at least 100 nucleotides, or (iii) a complementary strand of (i) or (ii), wherein medium stringency conditions are defined as prehybridization and hybridization a 42°C in 5X SSPE, 0.3% SDS, 200 mg/ml sheared and denatured salmon sperm DNA, and 35% formamide.

39. The nucleic acid sequence of claim 30, wherein the nucleic acid sequence hybridizes under high stringency conditions with (i) nucleotides 55 to 1662 of SEQ ID NO. 1, (ii) a subsequence of (i) of at least 100 nucleotides, or (iii) a complementary strand of (i) or (ii), wherein medium stringency conditions are defined as prehybridization and hybridization a 42°C in 5X SSPE, 0.3% SDS, 200 mg/ml sheared and denatured salmon sperm DNA, and 50% formamide.

40. The nucleic acid sequence of claim 30, which encodes a polypeptide having carboxypeptidase activity with (i) an optimal activity in the range of about pH 4.0 to about pH 5.0 at 25°C; (ii) an optimal activity in the range of about 55°C to about 60°C at pH 4; (iii) a residual activity of at least about 65.5% after 30 minutes at pH

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4.0 and 60°C; and (iv) an ability to hydrolyze X from N-CBZ-Ala-X wherein N-CBZ is N-carbobenzoxy and X is any amino acid.

41. The nucleic acid sequence of claim 30, which is contained in the plasmid pEJG12 which is contained in *E. coli*, NRRL B-21616.

42. A nucleic acid construct comprising the nucleic acid sequence of claim 30 operably linked to one or more control sequences which direct the production of the polypeptide in a suitable expression host.

43. A recombinant expression vector comprising the nucleic acid construct of claim 42.

44. A recombinant host cell comprising the nucleic acid construct of claim 42.

45. A method for producing a polypeptide having carboxypeptidase activity comprising (a) cultivating the host cell of claim 44 under conditions suitable for production of the polypeptide; and (b) recovering the polypeptide.

46. An isolated nucleic acid sequence encoding a polypeptide having carboxypeptidase activity with (i) an optimal activity in the range of about pH 4.0 to about pH 5.0 at 25°C; (ii) an optimal activity in the range of about 55°C to about 60°C at pH 4; (iii) a residual activity of at least about 65.5% after 30 minutes at pH 4.0 and 60°C; and (iv) an ability to hydrolyze X from N-CBZ-Ala-X wherein N-CBZ is N-carbobenzoxy and X is any amino acid.

47. The isolated nucleic acid sequence of claim 46, wherein X is selected from the group consisting of Ile, Glu, Lys, Arg, Asp, Asn, Phe, and Tyr.

48. The isolated nucleic acid sequence of claim 46, which is obtained from a strain of *Aspergillus* or a teleomorph thereof.